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To: Joyce Ackerman/EPR/R8/USEPA/US@EPA
cc:
Subject: CS environmental fate

Joyce,

It looks like you should not have any difficulty finding evidence of envrionmental CS if there has been a release. The parent compound should persist in dry soil. The abiotic hydrolysis product of CS is o-Chlorobenzaldehyde. Your lab analysis should include this hydrolysis product as well as the parent.

CS causes toxicity by conversion to cyanide in the blood so there are also several urinary metabolites which should be measurable in exposed individuals. Attached is an interesting excerpt regarding environmental fate of CS in Norway.

Chris

A single application of 2-chlorobenzalmalononitrile to snow surfaces in a Norwegian forest was examined for a 28-day period(1); at the end of the 28-day period, more than 10% of the application remained(1); the compound did not penetrate more than 3 cm below the snow surface(1). Analysis of snow samples near a detonation of a 2-chlorobenzalmalononitrile tear gas grenade in a Norwegian forest found that detectable levels (0.3 ug) could be identified in snow 70 meters from the detonation site 29 days after the detonation(1). Dusts or powders of 2-chlorobenzalmalononitrile that have settled to the ground after its use as a riot control agent can remain active for as long as 5 days(2); if the compound was formulated with a silicone water repellent, it may persist for as long as 45 days(2).